

# PATENT SPECIFICATION

1,155,328

DRAWINGS ATTACHED.

Inventor:—BARRY WILLIAM JASPER.

1,155,328



Date of filing Complete Specification: 9 Oct., 1967.

Application Date: 11 Oct., 1966. No. 45307/66.

Complete Specification Published: 18 June, 1969.

© Crown Copyright 1969.

Index at Acceptance:—B2 F(1A, 2R, 5B2Y, 5D4C2, 5D5A, 8E).

Int. Cl.:—B 05 b 7/00.

## COMPLETE SPECIFICATION.

### Paint Spraying Systems.

We, CLIFFORD COVERING COMPANY LIMITED, of Spring Road, Hall Green, Birmingham 11, a British Company, do hereby declare the invention, for which we  
5 pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to paint spraying  
10 systems of the kind incorporating a plurality of independently controllable spray heads supplied with paint from a common pressurised source.

It is known to utilise spray heads having  
15 spill outlets from which excess paint supplied to the spray heads is returned to the paint reservoir. With spray heads of this type it has been found that it is desirable to provide some arrangement whereby the system  
20 can be flushed out with paint whenever the spray heads are closed down. At the same time it is necessary to provide on the downstream side of each spray head a restriction to maintain the necessary pressure in the  
25 spray head for obtaining effective atomisation.

According to the present invention, in a paint spraying system of the kind specified,  
30 each of the spray heads is on a separate paint circuit including, on the upstream side of the spray head, a regulator operable to restrict flow to the spray head as the pressure at the spray head rises, and on the downstream side of the spray head, a restrictor  
35 valve movable between a flow-restricting position and a fully open position, all of the restrictor valves being coupled to a common actuating device operable to displace all of the restrictor valves to their flow-restricting  
40 positions when spraying is commenced and to displace all the restrictor valves to their

open positions when the spray heads are out of operation.

The accompanying drawing is a diagram illustrating one example of the invention. 45  
The example shown incorporates three spray heads 1 each of which has an inlet 1a, a spray nozzle 1b and an outlet 1c. Paint issues from the nozzle 1b under the control of a pneumatic valve within the spray head. 50

Paint is drawn from a reservoir 2 by a pump 3 the outlet of which is connected to a ring main system the pressure of which is maintained by a valve 4 at the end of the ring main. Each of the heads 1 is on a  
55 separate circuit drawing paint from the ring main.

Each of these circuits includes a flow regulator 5, one of which is shown in detail in the drawing. The regulator includes a  
60 chamber bounded at one end by a bellows 5a associated with a spring 5b, such that rising pressure within the chamber causes compression of the spring 5b. The inlet 5c to the chamber is controlled by a valve element 5d such that the inlet is restricted as  
65 pressure within the chamber rises. The outlet 5e of the regulator is connected to the inlet 1a of the spray head.

The outlet 1c of each spray head is connected to a corresponding one of a plurality of restrictor valves 6. In the example shown the valve 6 is of a very simple form utilising an angularly movable plug 6a. All of the  
75 valves 6 discharge into a manifold 7 whereby paint is returned to the reservoir 2. In addition all of the plugs 6a are angularly movable by a common actuating device. This device includes a single acting pneumatic  
80 piston cylinder unit 8 mounted on the end of the manifold and having an actuating rod 9 on which spools 10 are adjustably

mounted. The spools 10 are associated respectively with the valves 6, and each is engaged by a projecting pin on the end of an arm 11 secured to the plug 6a of the associated valve 6. The supply of air to the piston cylinder unit 8 is taken from the same supply as is applied to the pneumatic valves within the spray heads 1 although each such spray head has an individual valve for independent control of the spray heads.

Thus, in use, whenever the main valve 12 through which air is supplied to the spray heads is opened, air is supplied to the piston and cylinder unit 8 to move the plugs 6a to the flow restricting positions shown. In this condition adjustment of the spools 10 and of the springs 5b can be effected to obtain the desired pressure within the associated spray head 1. When the supply of air is shut off, however, the plugs 6a are moved under the action of the spring 13 in the piston and cylinder unit 8 to fully open positions so that there is a free flow of paint through each of the paint circuits.

In this way the need for maintenance and frequent cleaning of the system is largely eliminated. In addition when a change of paint colour is required, it is merely necessary to flush the whole system out with a suitable solvent since high rates of flow through the device can be obtained.

Instead of the spring 5b, air pressure in the upper part of the regulator may be used to bias the bellows 5a of the regulator 5.

#### WHAT WE CLAIM IS:—

1. A paint spraying system of the kind specified in which each of the spray heads is on a separate paint circuit including, on

the upstream side of the spray head, a regulator operable to restrict flow to the spray head as the pressure at the spray head rises, and on the downstream side of the spray head, a restrictor valve movable between a flow-restricting position and a fully open position, all of the restrictor valves being coupled to a common actuating device operable to displace all of the restrictor valves to their flow-restricting positions when spraying is commenced and to displace all the restrictor valves to their open positions when the spray heads are out of operation.

2. A paint spraying system as claimed in claim 1 in which each of said spray heads in pneumatically operated and said common actuating device is pneumatically operated, a main air valve being provided whereby compressed air is supplied both to said actuating device and to said spray heads.

3. A paint spraying system as claimed in claim 2 in which said restrictor valves are coupled to said actuating device through the intermediary of adjustable connections.

4. A paint spraying system as claimed in claim 3 in which the actuating device incorporates a longitudinally displaceable actuating rod and spools adjustably mounted on said rod, each restrictor valve having an angularly movable plug connected to an arm having at its end a pin engaged with an associated one of the spools.

5. A paint spraying system substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

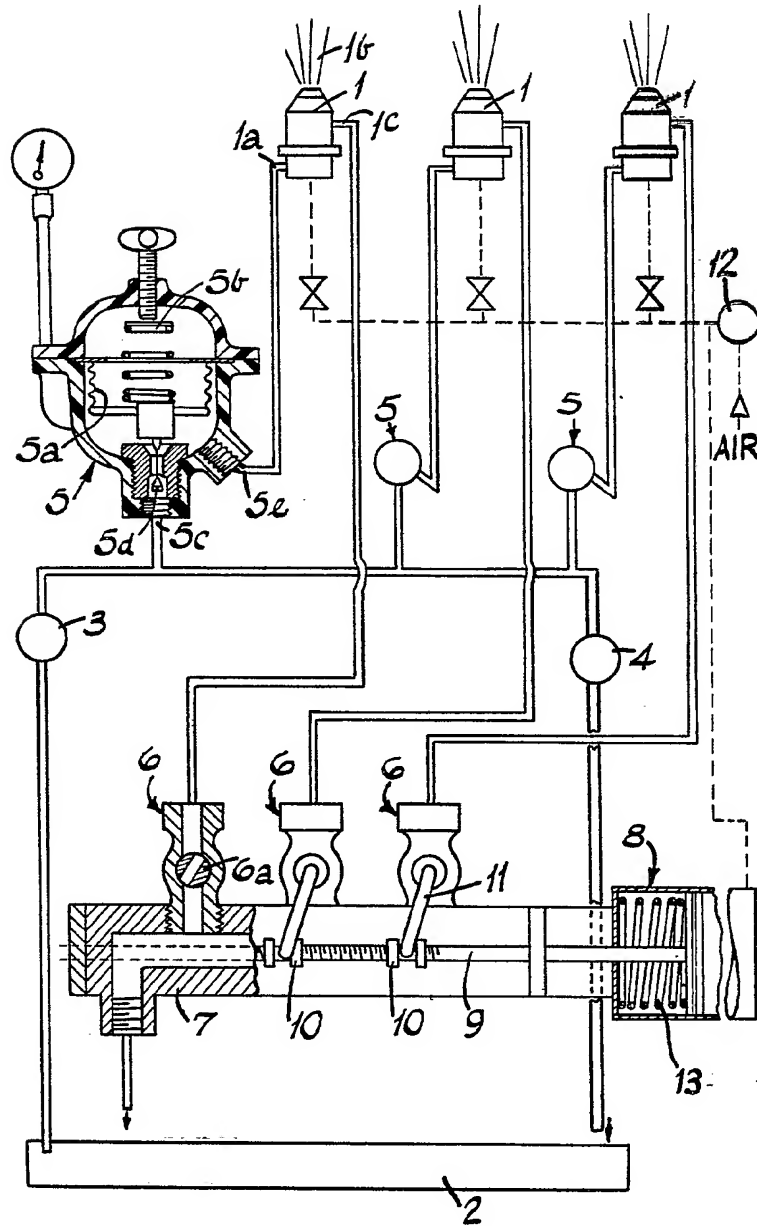
MARKS & CLERK,  
Chartered Patent Agents,  
Agents for the Applicants.

1155328

COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale



## Paint Spraying Systems.

**Publication number:** GB1155328

**Publication date:** 1969-06-18

**Inventor:** JASPER BARRY WILLIAM

**Applicant:** CLIFFORD COVERING COMPANY LTD

**Classification:**

- international: **B05B9/04; B05B12/08; B05B15/02; B05B9/04; B05B12/08; B05B15/02;**

- European: B05B9/04B9; B05B12/08T; B05B12/08T3B; B05B15/02

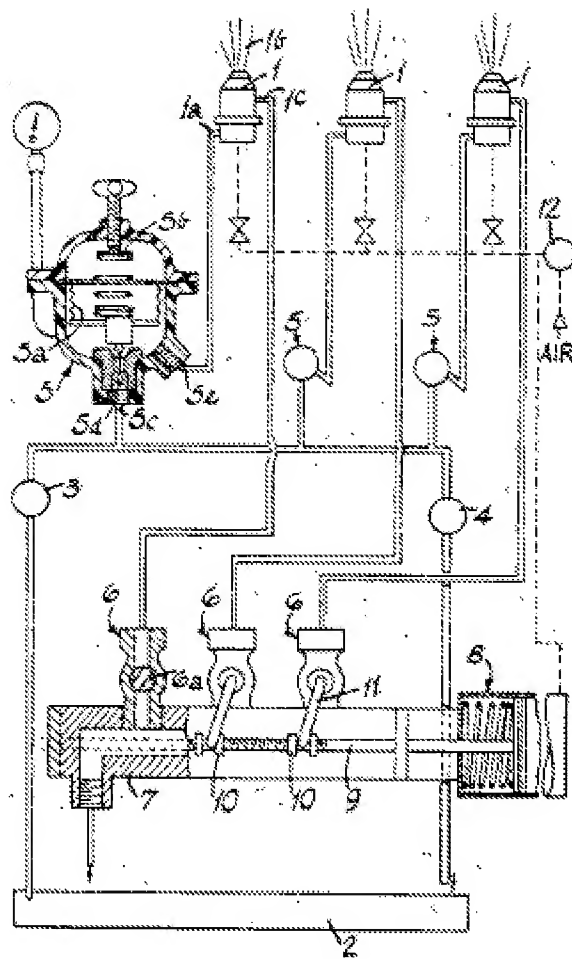
**Application number:** GB19660045307 19661011

**Priority number(s):** GB19660045307 19661011

Report a data error here

### Abstract of **GB1155328**

1,155,328. Paint spraying systems. CLIFFORD COVERING CO. Ltd. 9 Oct., 1967 [11 Oct., 1965], No. 45307/66. Heading B2F. Paint spraying systems have a plurality of independently controllable spray heads 1 supplied with paint from a common pressurised source 2 and in which each spray head is on a separate paint circuit comprising on the upstream side of the spray head a regulator 5 operable to restrict flow to the spray head as pressure at the spray head rises, and on the downstream side of the spray head, a restrictor valve 6 movable between a flowrestricting and a fully open position, a11 the restrictor valves being coupled to a common actuating device operable to displace all of the restrictor valves to their flow-restricting positions when spraying is commenced and to displace all the restrictor valves to their open positions when the spray heads are out of operation. The spray heads and actuating device may be pneumatically operated by a common compressed air supply. The valves may be coupled to the actuating device by adjustable connections, e.g. by spools 10 adjustably mounted on a longitudinally displaceable actuating rod 9.



Data supplied from the **esp@cenet** database - Worldwide

